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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/743,866

12/24/2003

Eui-Sun Hong

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49455

7590

11/18/2009

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EXAMINER

ECHELMAYER, ALIX ELIZABETH

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

11/18/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptomail@smiplaw.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/743,866	<b>Applicant(s)</b> HONG ET AL.	
	<b>Examiner</b> Alix Elizabeth Echelmeyer	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 August 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 and 13-15 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is in response to the amendment filed August 7, 2009. Claims 1-10 and 13 have been amended. Claims 1-10 and 13-15 are pending and are rejected finally for the reasons given below.

### ***Claim Rejections - 35 USC § 103***

2. Claims 1-7, 10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishita et al. (US 5,976,729) in view of Slezak (US 2004/0058234) and Nakanishi et al. (US 2002/0142211).

Morishita et al. teach a battery cell having an outer can made from aluminum or aluminum alloy (abstract).

Morishita et al. teach that the cell has an outer can containing an electrode assembly and electrolyte, a sealing lid, and a bottom on which a layer of nickel is provided on the outer surface of only the bottom portion of the can and not on the side wall of the can (Figure 6, column 4 lines 1-9).

The nickel layer of Morishita et al. is 0.10 mm, or 100  $\mu$ m (column 5 lines 30-38).

With regard to claim 4, the layer may also comprise copper (column 3 line 20).

Claims 3 and 5 are a process-by-product claim. The product produced by the process-by-product claims 3 and 5 are the product stated in claims 2 and 4, respectively. The cited references teach a product that is the same as, or an obvious variant of, the product set forth in claims 2 and 4, respectively. Claims 3 and 5 are

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alternatively unpatentable. The product of claims 2 and 3, and the product of claims 4 and 5, appear to be the same. See MPEP 2113 and *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983)

As for claim 6, the bottom surface of the battery can is welded to a first lead plate and the first lead plate is welded via resistance welding to a second lead plate for connection to the battery (column 1 lines 54-61; column 2 lines 59-63).

Claim 7 is a process-by-product claim. The product produced by the process-by-product claim 7 is the product stated in claim 6. The cited references teach a product that is the same as, or an obvious variant of, the product set forth in claim 7. Claim is alternatively unpatentable. The product of claim 6 and the product of claim 7 appear to be the same. See MPEP 2113 and *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983)

With regard to claim 10, Morishita et al. disclose a reliable protective circuit or safety device having leads connecting the battery and the associated protective circuit or safety device (column 1 lines 54-61; column 2 lines 59-63).

Morishita et al. fail to teach that the nickel layer is a surface coating.

Slezak teaches a nickel plating layer on the outside surface of a battery can ([0106]).

One of ordinary skill in the art could have substituted the nickel plating layer of Slezak for the welded nickel layer of Morishita et al. and the results of the substitution would have been predictable. MPEP 2141 III.

Morishita et al. in view of Slezak fail to teach that the sealing lid is welded to the can.

Nakanishi et al. teach a secondary wound battery having an end cap attached to the can by welding ([0012], [0142]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to attach the cap of Morishita et al. in view of Slezak by welding such as taught by Nakanishi et al. since welding would ensure that the electrode assembly and electrolyte solution were sealed within the battery can, preventing leakage and allowing for electricity generation.

3. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishita et al. in view of Slezak and Nakanishi et al. as applied to claim 6 above, and further in view of Seiji (Japan 60 124351). Additionally, datasheets for copper and copper alloys have been cited as evidence as discussed below.

The teachings of Morishita et al., Slezak and Nakanishi et al. as discussed above are incorporated herein.

Morishita et al. in view of Slezak and Nakanishi et al. do not teach an outside layer comprised of a first material and a lead connected thereto comprised of a second material having a melting point different from the layer material by 500 °C or 200°C or less. Morishita et al. in view of Slezak disclose that a two-layer lead in the form of nickel plating is attached to the bottom surface of the battery.

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The first layer of the lead is aluminum or an aluminum alloy and the second layer being nickel or a nickel-plated iron, nickel-plated stainless, or nickel-plated copper (col. 2 lines 33-36; col. 3 lines 18-20).

Morishita et al. in view of Slezak and Nakanishi et al. do not explicitly teach that the melting point of the materials differ by 500°C or less or that they differ by 200°C or less.

Seiji teaches a nonaqueous electrolyte cell having a copper layer on the outside surface of the positive electrode enclosure or can (See abstract). Seiji teaches that the use of nickel or copper on the outside surface of the terminal face reduces the contact resistance.

A lead constructed of a copper-nickel alloy has a melting point of 1170 °C (Copper & Alloys datasheet, page 3). The copper outside layer of the battery can has a melting point of 1083 (chemical Elements Basic Information-Copper). Therefore, the melting point of the battery can outside layer and the lead material differ by 200 °C or less.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the battery can outside layer of Morishita et al. in view of Slezak and Nakanishi et al. to use copper in the construction of the battery can as taught by Seiji to reduce the contact resistance. The melting point of copper differs by 500 °C, 200 °C, or less from the melting point of the lead construction material, a copper-nickel alloy taught by Morishita et al. The proper selection of the construction

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materials in contact in the battery eliminates the adverse effects such as corrosion that result from joining dissimilar metals.

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishita et al. in view of Slezak and Nakanishi et al. as applied to claim 1 above, and further in view of Shibata et al. (EP 0 899 799 A2).

The disclosures of Morishita et al., Slezak and Nakanishi et al. as discussed above are incorporated herein.

Morishita et al. in view of Slezak and Nakanishi et al. do not teach a metal layer between the layer and the outer surface of the can having a first material selected from Zn, Sn, Fe, and Cr.

Shibata discloses a jar can for a secondary battery. The bottom surface of the battery can consist of multiple layers. Layer 1 is the aluminum or aluminum alloy of the battery can bottom surface. Layer 2 is the layer adjacent to the exterior to the bottom of the can and is constructed of iron or a ferrous alloy. Layer 3 is the layer adjacent to the exterior surface of the iron layer and it is constructed of nickel (paragraphs 18- 23). The iron layer maintains the stiffness or structural strength of the can and the use of aluminum reduces the weight of the battery can (paragraphs 19-21).

The reference does not explicitly state that the material in layer 1 is the same as the material in layer 3. The aluminum alloy of layer 1 may contain nickel as a common material.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Morishita et al. in view of Slezak and Nakanishi et al. to include iron as an internal layer of the bottom of the battery can to ensure the structural strength of the can is maintained as taught by Shibata et al.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-10 and 13-15 have been considered but are moot in view of the new grounds of rejection, see above, as necessitated by the amendment.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICK RYAN/  
Supervisory Patent Examiner, Art Unit 1795

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